

Titres and their relation to vaccination

by Jeff Grognet, DVM, BSC. (Agr.)

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Titres were first used to determine the need for annual vaccinations. Then, when vaccines moved to triennial schedules, titres did, too. Now there is confusion on how often titres need to be done and how to interpret them.

A titre is a measure of antibody to a particular virus in the blood. It is expressed as a ratio of how many times the blood can be diluted before antibodies are no longer detectable. For example, if blood is diluted twice and antibodies can't be found, the titre is 1:2. If it can be diluted 2,000 times, the titre is 1:2,000. Laboratories often suggest that titres of 1:20 for distemper and 1:80 for parvovirus are protective.

You would assume that a high titre suggests a dog is protected from disease and a low titre indicates poor immunity, but it is not that straightforward.

When a dog is vaccinated, two main types of cells are produced. Effector cells are the quick-response cells. They manufacture large amounts of antibody but they're short-lived and die off within weeks after vaccination. Memory cells, in contrast, persist for years but produce only small amounts of antibody. These memory cells provide long-term immunity by standing on guard, ready to create antibodies at a moment's notice.

While active, effector cells produce a high titre. As they dissipate, the titre falls and stays at a low level because of the contribution by memory cells.

Titres are useful for telling us if a puppy has responded to vaccinations. For example, once a puppy is vaccinated at eight, 11 and 14 weeks of age, a titre test should be done two weeks after the last vaccination. If the titre is high, the pup is protected. A low or non-existent titre indicates that the pup failed to respond and needs additional vaccines.

In the past, titres were done at a year of age to see if vaccines were required at that point. The problem was that if a pup had not responded to the vaccines and was not revaccinated (at 18 weeks in the earlier example), he would be susceptible during the most critical time of his life.

A debate among veterinarians is – how often should titres be done? Some veterinarians do them every three years, coinciding with current vaccine recommendations. Others believe that a positive titre means the dog responded to the vaccine and memory cells are present for the life of the dog. This thinking comes from experience with humans regarding viral vaccines. If this truly is the case (it has not been proven), one titre test showing a response is all that's needed. This is not a view held by all veterinarians.